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Report of the Secretary of War.

WAR DEPARTMENT, *December* 1.

(*Concluded.*)

At the last session of Congress an appropriation of $150,000 was made to ascertain the most practicable and economical route for a railroad from the Mississippi River to the Pacific Ocean, and the act required that the several reports relative to the explorations should be laid before Congress on or before the first Monday of February, 1854. The time allowed, and the money appropriated, it is feared, will prove insufficient for the complete solution of this important problem. A vast extent of country was to be accurately surveyed, and numerous lines, thousand of miles in extent, to be examined; and it is hardly therefore to be hoped that such data can be collected as will satisfactorily answer the question proposed. But it is confidently believed that much information will be added to the stock previously possessed—perhaps enough to determine the practicability of the proposed enterprise.

The following general sketch of the country to be explored will give some idea of the magnitude of the examination required:

The western portion of the continent of North America, irrespective of the mountains, is traversed from north to south by a broad, elevated swell, or plateau of land, which occupies the greater portion of the whole space between the Mississippi River and the Pacific Ocean. The crest of this plateau, or the water shed of the country, is nearly midway between the Pacific coast and the Mississippi. It may be represented on the map by an undulating lined traced between the headwaters of the streams which flow eastward, and those which flow westward. It divides the whole area between the Mississippi and the Pacific into two nearly equal portions, that on the east being somewhat the larger. This crest of the water-shed has its greatest elevation in Mexico, and thence declines to its lowest point about the latitude of 32°, where it has a height of about 4,500 feet, between the waters of the Rio Grande and those of the San Pedro, a tributary of the Gila. From this parallel it increases in altitude northward, and reaches its maximum near to the 38th parallel, where it is about 8,000 feet high. Thence it declines as we pass northward, and in latitude 42° 24″ has an elevation of, say 7,000 feet, and in the latitude of about 47° it is reported to be at least 1,700 feet lower. The heights here given are those of the lowest passes over the crest, or water-shed, of the great plateau of the country, and not those of the mountain peaks and ridges which have their base upon it, and rise, in some cases, to the height of 17,000 feet, into the region of perpetual snow.

The slope of the plateau on the east and south, towards the Mississippi and the Gulf of Mexico, is comparatively gentle, and in Texas is by several steps, of which the highest is that known by the name of the *Llano Estracado*, or Staked Plain. It is traversed by the Missouri, the Platte, the Arkansas, and other large rivers which rise among the mountains near the crest, and flow eastward and southward, in channels sunk beneath the general surface level of the plains.

In latitude 42 degrees, near the source of the Platte, it has an elevation of about five thousand feet above tide, and in the same latitude on the Mississippi, about one thousand feet. Towards the sources of the Arkansas, in latitude 36 degrees, it has a height of four thousand feet, and in the same latitude on the Mississippi, two hundred and seventy-five feet. These elevations give an average declination eastward, to the whole plan, of about four and a half feet per mile, and southward of about two and a half feet.

The crest of the plateau, and nearly the whole of its western portion to the Pacific, is occupied by a great mountain system, the continuation of the Andes of South America. It has a variable breadth, narrowest within our possessions, near the Gila, in latitude 32 degrees, where it has a width of about five hundred miles, and attains its greatest expansion in the parallel of 40 degrees, where it occupies a space of about nine hundred miles. On this mountain base, as has been said before, are situated a series of elevated peaks, ridges and ranges. Those on the eastern side are nearly continuous for about nine hundred miles, and known by the name of the Rocky mountains; those on the western side are perhaps less continuous, although equally elevated above the base, and designated as the Sierra Nevada, Coast Range, Cascade mountains, &c. The whole space between these extreme ranges is occupied by high peaks, and in various directions by a series of ridges, including elevated valleys, and forming great basins having no outlet to the sea. The most important of these is Salt Lake Basin, having an elevation of four thousand one hundred feet.

This mountain region is not, as is frequently supposed, a single chain, but a system extending from a little east of the crest of the water-shed to near the shores of the Pacific, and occupying about one-half of all the space between the Mississippi and the Pacific Ocean. The position of this belt of mountain region, stretching from north to south, gives rise to a peculiarity of climate and soil. Fertility depends principally upon the degree of temperature and the amount of moisture, both of which are much affected by increase of elevation, and the latter also depends on the direction of the wind. The upper or return current of the trade wind, flowing backwards towards the north-east, gives a prevalence of westerly winds in the north temperate zone, which tends to spread the moisture from the Pacific over the westean portion of our continent.

These winds, however, ascending the western slope of the mountain ridges, are deprived of their moisture by the diminished temperature of the increased elevation, and hence it is that the plains and valleys on the eastern sides of the ridges are generally parched and barren, and that the mountain system—the highest chain of which is known as the Rocky mountains, by presenting, as it were, a screen against the moisture with which the winds of the west come laden—has for its eastern margin a sterile belt which probable extends along the whole range, with an average width of about 250 miles.

These general views, derived as they have been from imperfect data, may yet serve to give some idea of the immense magnitude of the work necessary to construct a railway from the Atlantic to the Pacific. No work for artificial communication has ever exceeded it in extent and physical difficulty. Its execution, however, is within the means and power of the American people. The degree of practicability and the comparative economy and eligibility of routes cannot be determined without accurate instrumental surveys. An error in the selection of the route may involve the undue expenditure of many millions, and the ultimate value of the work; for this choice should not depend alone upon apparent ease of construction, but also upon the productive character and general resources of the country through which it passes.

From the foregoing sketch it will be perceived that the lines of exploration must traverse three different divisions or regions of country lying parallel to each other, and extending north and south, through the whole of the western possessions of the United States. The first is that of the country between the Mississippi and the eastern edge of the sterile belt, having a varying width of from 500 to 600 miles; the second is the sterile region, varying in width from 250 to 300 miles, and the third the mountain region, having a breadth of from 500 to 900 miles.

Explorations show that the surface of the first division, with few exceptions, falls in gentle slopes from its western boundary to the Mississippi, at the rate of about six feet to the mile, and that it offers no material obstacle to the construction of a railway. It is, therefore, west of this, that the difficulties are to be overcome. The concurring testimony of reliable observers proves the second division, or that called the sterile region, to be so inferior in vegetation and character of soil, that it has received, and probably deserves the name of the desert. The construction of a railway through this region will be attended with obstacles which though not insurmountable, will be scarcely less difficult to overcome than the elevations in the mountain passes of the next division.

Report also gives the character of extreme sterility to much of the country embraced in the mountain region; yet in the conflict of opinion on this subject, and amid the variety of accounts which have been given of it, doubts have arisen in the minds of many as to the possibility of the existence of such extensive regions in our possessions, unsuited to the purposes of man. To settle this question, with which the construction of a railway is intimately connected, the parties have been instructed to collect all the facts which may have a bearing on the capacity of these regions to support human life.

It was necessary, before determining what routes should be explored, to examine the information which had already been obtained. Only three parties had extended their explorations with proper instruments from the Mississippi to the Pacific. The first and most northern, was by the way of what is called the South Pass and the Sierra Nevada; the second through Santa Fe, the copper mines, and along the Gila, and the third by the way of the Zuni river and the Colorado.

Other surveys have been made with barometer levels over detached portions of the region to be explored. The information thus obtained, though limited, is specific as far as it goes, and gives just ideas of the elevations and other obstacles to be surmounted. Much valuable and reliable information has also been furnished by the Mexican boundary survey.

The explorations of Lewis and Clarke, who crossed to the Pacific, and those of Colonel Long, while they throw much light on the general geography and topography of the country, and have served to indicate the routes to be explored, do not give profiles of the regions passed ever.

Reports from travelers who have gone over the continent entirely without instruments, are as various and conflicting as the routes themselves, and even of the same route totally different accounts are given. Any information other than that based on accurate instrumental measurement, though it may be of some importance in indicating routes to be surveyed, is of little value in determining the question of a railway. It is necessary for this purpose to have well determined facts and not vague impressions.

The expedition of Lewis and Clarke showed the probability of a considerable indentation in the crest of the water-shed of the continent, near the forty-seventh parallel of north latitude, and indicated the probability of a railway route in this region, from the head-waters of the tributaries of the Missouri, across to those of Clark's river.

The party first organised under the act of Congress was the one to explore this line, which claimed the earnest attention, from the known severity and length of the winter, and the necessity of commencing operations early in the year. It was placed in charge of Gov. Stevens, of Washington Territory, who was directed to operate from St. Paul's, or some eligible point on the Upper Mississippi towards the great bend of the Missouri river, and thence on the table land between the tributaries of the Missouri and those of the Laskatchawam, to some eligible pass in the Rocky mountains. A second party, commanded by Capt. McClellan, under the direction of Gov. Stevens, was directed to proceed at once to Puget sound, and explore the passages of the Cascade range, meeting the eastern party between that range and the Rocky mountains.

Taken in geographical order, the next survey ordered to be made was that entrusted to Capt. Gunnison, corps of topographical engineers. He was instructed to explore the route near the 38th parallel of latitude, by the Huerfano river and Coocha-to-pa, or some other eligible pass, into the mountainous region of the Grand and Green rivers, and westwardly to the Vegas of Santa Claus and Nicollet's river of the Great Basin, and thence northward to the vicinity of Lake Utah. Reliable information furnished by persons who had been extensively connected with the western explorations of the government, gave such assurance that no railway pass could be found north of Kern river into either the Sacramento or San Joaquin valley, that it was not deemed proper to expend any part of the limited means appropriated in such a search, and having learned that the Mormons of the Great Salt Lake were making a survey for a railroad from their settlement to Walker's pass, Captain Gunnison, whose former intercourse with their engineer would enable him to obtain whatever information he possessed, was directed to procure a report of that survey, thus connecting his line with the survey to be ordered near the 35th parallel.

Postponing for future operations, if further surveys shall be ordered, the exploration of a route from the Salt Lake across the Sierra Nevada to the valley of the Sacramento, Capt. Gunnison was directed to return from the Great Basin through the Timpanajo Canon or other passes, across the Weber and Bear rivers by the coal basin, to such point of disbandment as his discretion might direct.

The next line is that near the 35th parallel, which is in charge of Lieut. Whipple, of the corps of topographical engineers. He was directed to ascend the valley of the Canadian river, to pass around the mountains east of Rio del Norte and enter the valley of that river at some point near Albuquerque, thence to extend his explorations west through Sierra Madre and the mountains west of Zuni and Moqui countries to the Colorado of the west, and proceeding in the direction of Walker's Pass, to continue his survey by the most direct and practicable line to the Pacific ocean. Much testimony in favor of the practicability of this line indicated it as a proper route for exploration.

Another line further north is that suggested by the surveys of Major Emory, 1846, and those of the boundary line of the 32d parallel. It passes around the extremity of the Guadaloupe mountains of Texas in about latitude 31°, and crosses the Rio Grande near Dona Ana or Frontera in about latitude 32°, and thence follows the table lands west of the San Pedro river, and thence along the Gila river to its mouth. A portion of this line passes through the territory of Mexico, and another portion is north of the line of operations of the boundary commission, and consequently these were not included in the boundary survey. The gaps thus existing in this line are to be filled up by the survey of Captain Pope and that under the direction of Lieutenant Parke, both of the corps of topographical engineers. The instructions to the latter were not given until recently, because the survey with which he is charged requires a part of the line to be run within the limits of Mexico. The Mexican government have, however, removed the difficulty, by granting authority to the United States to make all explorations necessary to determine the practicability of a railway route in this region.

Several partial routes on the Pacific side, to connect, as before described, with those from the east, were directed to be surveyed by Lieutenant Williamson, of the corps of topographical engineers. He was instructed to examine all the passes eastward from the valley of the San Joaquin and the Tulare lakes, and subsequently to explore Walker's and other passes which exist in the high range of mountains, apparently the southern continuation of the Sierra Nevada.

The experience of almost every party which has crossed the continent, shows the necessity of fitting out a separate party on the shores of the Pacific to explore the Sierra Nevada and the other elevated ranges near that coast. Parties reaching these great barriers from the Atlantic side are too much fatigued and exhausted to make elaborate surveys. It is also necessary that these parties should commence operations early in the spring, in order to complete the field work before the heavy snows interrupt progress.

Copies of the instructions given to all the parties are hereto appended. From these it will appear that the officers of the different expeditions have been directed to observe and note all the objects and phenomena which have an immediate or remote bearing upon the railway or which may serve to develope the resources, peculiarities and climate of the country. For this purpose they have been supplied with full sets of instruments for determining the latitude and longitude of places, the courses and distances of the routes, and of the topography of the country on either side within accessible distances; with the means of ascertaining the variations of atmospheric pressure and other meteorological phenomena; and two of the parties with instruments to determine the direction and intensity of the magnetic force. They have been directed to observe the prevailing direction of the wind, the amount of rain, the degree of temperature and humidity of the atmosphere; they are also required to report on the geology of the country, to gather specimens of the different rocks and soils, to make collections of the plants and animals, and to collect statistics of the Indian tribes which are found in the regions traversed. The information which will be derived from this series of observations will be of much value in establishing the capacity of the country to sustain population and furnish articles of commerce. The astronomical observations are indispensable in fixing the geographical position of the principal points of the route, and for improving the map of our western possessions. The magnetic observations are of importance in accurately tracing the line between the points determined by astronomical observations. It is well known that the magnetic needle has an irregular and sometimes fitful variation, amounting to a difference of eighteen degrees between Washington city and the western coast of Oregon, and the law by which this variation is increased or diminished has not been ascertained.

The meteorology of the country has a direct bearing on the question of the construction of a railway. The amount of snow which will probably be found along the route should be ascertained, and this will depend on the temperature and humidity of the place. As we advance to the north, the amount of vapor diminishes, and hence the quantity of snow which falls will be less; but, on the other hand, it will lie longer on account of the diminution of temperature. It was, therefore, deemed proper that the hygromatical state of the atmosphere should be measured by suitable instruments, and the mean temperature ascertained by thermometrical observations of the soil at a few feet below the surface.

A knowledge of the geology of a country is important, as affording essential data relative to the construction and use of the railway. It teaches, in advance of our expensive experience, the obstacle which will be presented by rocks to be excavated, and their fitness for the use of masonry, and discloses the presence of sand which may drift over the track or damage the rubbing parts of the machinery. From the character of the geological formation is to be inferred the probability of the existence of coal, and the dip and strata of the rock, the feasibility of procuring water by artesian wells for the use of the engines—and whether or not the supply may be extended beyond this want, and happily serve for the irrigation of the land. Should this last result be obtained, it would furnish the means to convert a sterile waste into a fertile region, and add to the power and wealth of the United States, by extending the settlements in a continuous chain from sea to sea.

Observations were directed to be made as to the zoology and botany of the country which enters into the question of the choice of routes, because they are indicative of the capacity of the country to sustain life and furnish materials for construction.

Allusion has been made to the inadequacy of the appropriation for surveys to ascertain the best route for a railroad from the Mississippi river to the Pacific ocean. In determining the route of ordinary railroads through thickly settled countries of easy access, one half per cent. on the actual cost of construction is not considered too liberal an allowance for the preliminary surveys, and therefore it cannot be expected that the best line for a road which has been estimated to cost $100,000,000 can be located through an uninhabited and comparatively unknown region for $150,000.

There is but little doubt that the best line which can be chosen will present a combination of nearly all the obstacles which have, up to this time, been successfully encountered by the art of the engineer, and that any haste or negligence which should cause an improper location of the road to be made, must lead to consequences which would endanger the success of the whole enterprise.

A striking illustration of the value of opinion not based on instrumental survey, is presented in the developments made by Lieut. Williamson's exploration of Walker's pass. It will be remembered that this famous gap was considered a fixed point, and the various expectations on routes differing in everything else generally concurred in tending to Walker's Pass. Recent information from Lieut. Williamson establishes the fact that this pass is impracticable for a railway.

The information which has been received from the parties now in the field is too limited and imperfect to justify an opinion on the question proposed by the act of Congress. When the reports of those parties shall have been received, or at the date prescribed by Congress, it is my purpose to submit a condensed statement and map, exhibiting all the reliable information possessed, with profiles annexed of all instrumental surveys which have at any time been made, and which serve to answer the inquiry contained in the act of appropriation under which surveys are now in progress.

If I seem to have pressed the magnitude of the obstacles to a successful execution of the contemplated work, it has not been to suggest the abandonment of the undertaking, but only to enforce the propriety of much caution in the preliminary steps, and the necessity for concentrating all the means which can be made available to the completion of so gigantic a project.

Preconceived opinion or prejudice, personal interest and sectional rivalry, must be held subject to the development of instrumental survey, and subservient to the purpose of final success, or the result to be anticipated is failure. And when, from the consideration of the magnitude of the difficulties to be overcome, we pass to the importance of the effects to be produced, there is enough to sustain patriotism in the sacrifice of any personal or local interest which may be involved. Its commercial and agricultural advantage, its political and military necessity, have attracted the attention and excited the interest of our whole country. Congress has by its appropriation manifested the purpose to obtain such information as will secure a proper location of the road.

The necessity for more rapid sources of communication has been referred to the other parts of this report when treating of the defence of our southern boundary, the Western Territory, and the Pacific coast. Duties and interests of vital importance, other than these, arise in the consideration of the railroad to the Pacific; but as they do not fall under the charge of this department, I have not attempted to present claims, nor have I deemed it proper in this communication to offer my views as to the means or the mode by which the general government may constitutionally aid in the attainment of the contemplated object.

The absence of navigable streams in a large portion of our recently acquired territory, and the existence of the vast arid and mountainous regions, described in another part of this report, have entailed upon the government a very heavy charge for the transportation of supplies, and for the services of troops stationed along our new frontier, and operating against the predatory and nomadic Indians of those regions. The cost of transportation within that country for purposes connected with military defence, amounted in the year ending June, 1853, to $451,775 07.

The modes of transportation now used—wagons drawn by horses, mules or oxen—besides being very expensive, are necessarily circuitous on the routes traveled, slow and generally unsatisfactory, as to prompt inquiry for means which may be attained with better results. In any extended movement, these wagon trains must depend upon grass for forage, and their progress will seldom average more than twelve miles per day; and it often happens in traversing the country just referred to, that long spaces are encountered in which there is neither grass nor water, and here the consequence must be, severe privation and great destitution of the animals employed, if not the failure of the expedition. These inconveniences are felt in all movements between the distant parts of that section, and seriously obstruct, sometimes actually defeat the pursuit of the mounted Indians of the plains who, by their intimate knowledge of the places where the small supplies of water and grass are to be found, are able to fly across the most arid regions after having committed depredations on our frontier population or upon the trains of merchants and emigrants.

Beyond the difficulties here contemplated in connection with transportation to the interior, it is proper to look to those which would arise in the transportation of supplies for the defence of our Pacific coast, in a contingency of war with a maritime power. Our experience has been confined to a state of peace, and to the use of routes of communication which pass beyond the limits of our territory. Reasoning from the difficulties which have been encountered in supplying points where it was necessary only to traverse a part of the space which lies between the Pacific coast and the points of supply, it may be claimed as a conclusion that it would not be practicable with the means now possessed to send across the continent the troops, munitions, and provisions which would be required for the defence of the Pacific coast. A railroad, such as has been contemplated, to connect by the most eligible route the Mississippi river with the Pacific coast, would but partially remove the difficulties. It would serve to transport troops, and to supply depots along the route, and at the extremity of the line, but there would still be vast regions of the interior too remote from its depots materially to feel its effects.

On the older continents, in regions reaching from the torrid to the frozen zones, embracing arid plains and precipitous mountains covered with snow, camels are used with the best results. They are the means of transportation and communication in the immense commercial intercourse with central Asia. From the mountains of Circassia to the plains of India, they have been used for various military purposes, to transmit dispatches, to transmit supplies, to draw ordnance, and as a substitute for dragoon horses.

Napoleon, when in Egypt, used with marked success the dromedary, a fleet variety of the same animal, in subduing the Arabs, whose habits and country were very similar to those of the mounted Indians of our western plain. I learn, from what is believed to be reliable authority, that France is about again to adopt the dromedary in Algeria for a similar service to that in which they were so successfully used in Egypt.

For like military purposes, for express and for reconnoisances it is believed the dromedary would supply a want now seriously felt in our service; and for transportation with troops rapidly moving across the country, the camel, it is believed, would remove an obstacle which now serves greatly to diminish the value and efficiency of our troops on the western frontier.

For these considerations it is respectfully submitted that the necessary provision be made for the introduction of a sufficient number of both varieties of this animal to test its value and adaptation to our country and our service.

In connection with the means to be adopted to overcome existing difficulties in the transportation of troops and army supplies, I further invite your attention to the condition of Fort Yuma, at the junction of the Gila and Colorado rivers. It is now supplied from San Diego, by the overland route at enormous expense. Attempts have been made to send supplies through the Gulf of California and the Colorado river, but the latter by reason of the shoals at its mouth not being practicable for sea-going vessels, within a considerable distance of our southern boundary, it becomes necessary at some port within the limits of Mexico to tranship on light draft boats or to haul the stores across the Mexican frontier. The necessity of possessing a port for this purpose is too apparent under existing circumstances to require or justify explanation.

The works of river and harbor improvement have made satisfactory progress during the past season, under the direction of the chiefs of the two corps of engineers, to whose reports, herewith submitted, I refer for particular information with regard to the several works. These reports have been made in more than usual detail, in order to embrace the information which the Senate, by a resolution passed the 3d of March last, requested this department to have transmitted with the annual report.

The appropriation for this work having been made in August, 1852, the arrangements for executing a large majority had been made before I entered upon the duties of this department. In determining upon the few plans that have been submitted to me, my view has been that such only should be adopted as could be executed with the existing appropriations. The general provision in regard to these works is a simple direction to apply a certain sum to a specified object, without any intimation or intention on the part of Congress to make further appropriations, and I deemed it to be improper to expend those appropriations in commencing works upon a scale which the department has not means to complete, and which, in a great measure, must be lost unless Congress make further appropriation for them. These views, however, were not held by the department, when most of the works authorized by the act of August, 1852, were planned, but the mode, extent, and cost of the several improvements seem to have been considered as a matter of discretion, and the plans adopted for their execution do not seem to have been governed in regard to cost by the amount of the appropriation, but would require for their completion large additional grants, amounting in some cases to almost tenfold the original appropriations. In some cases, corporations and associations of citizens would come forward with offers of voluntary contributions in aid of the appropriations made by Congress; but as it was not deemed competent for this department to receive money from such sources, by way of either loan or gift, a regulation was adopted under which States, cities, corporations or individuals desiring to aid any work, are permitted to construct portions of it under the direction of the officer in charge, who superintends their operations, and audits the accounts for work done, for payment by the contributing parties, but does not receive the money or assume any control whatever over it. Such parties, moreover, have been distinctly informed that they were to have no claims whatever upon the government for reimbursement of the expenditures thus made by them.

In the prosecution of these works of internal improvement, the department has encountered some of those difficulties which were to be expected from the indefinite nature of its powers in regard to them. In a recent case, the right of the United States to a pier erected for the improvement of a harbor, was disputed by the riparian proprietors. The pier which had originally abutted on their lands, caused an accretion which followed its extension far into the lake, and these parties who were entitled to the accretions, claimed the pier also as attached thereto. The United States having possessed no title to the submerged soil or other jurisdiction than that claimed by the general government over navigable waters, the question involved the power to preserve the work. In another case, the improvement of the navigation of a river entirely within the limits of a State, and for which an appropriation had been made by Congress, was found to have been already undertaken by a company under a State charter granted for that purpose. It happened in both cases, that circumstances existed which rendered an accommodation easy. The riparian proprietors wanting the pier only for a wharf, were content to hold a possession under the government, waiving the question of title; and the navigation company were willing that the appropriation should be expended in furtherance of the object for which it was made, the plans of operation fortunately concurring, so that satisfactory terms were agreed upon. It is manifest, however, that cases might readily occur, and probably will occur, where the interests of the opposing party cannot be brought into harmony, and I do not feel that the government is acting prudently in expending large sums upon objects which may be converted to individual profit.

Referring to the earlier action of the government upon this subject, we find in several statutes prior to 1853, the cession of jurisdiction of particular works of harbor improvement, and it appears by the language of the act of May 7, 1822, (3 Statutes, 699,) that such cessions were understood to be necessary in all cases, but the requirement was thereafter discontinued, and the practice of obtaining cession of jurisdiction ceased also.

Subsequently, in view of the danger of eviction from public works, after the expenditure of large sums of public money upon them, a joint resolution, approved September 11, 1841, required that no public money be expended upon any site of land thereafter purchased for amories, arsenals, forts, fortifications, navy-yards, custom-houses, light houses, or other public buildings whatever, until the written opinion of the Attorney General shall be had in favor of the validity of the title, also the consent of the legislature of the State in which the land lies, shall have been given to the purchase. But so far as I am advised, this department have not construed this act to apply to the sites of structures for the improvement of harbors or rivers, or deemed it necessary to purchase land, either with or without the consent of the legislature of the State for any such purpose.

The legislation of Congress, and the past action of the department both having received the approval of each President under whose administration they occured, did not leave me at liberty to regard it as an open question, whether or not the act does properly include within its meaning such constructions as are made for the protection and improvement of harbors and rivers. To guard against the conflict of jurisdiction which may equally arise on the site of a pier, a jettee or breakwater, as upon that of a fort, dock-yard, or custom-house, and warned by recent experience of the probabilities of such occurrences, it is submitted whether future appropriations, if any shall be made for such constructions, should not be subjected to the requirement of the act of 1841, before referred to, and the conduct of the government thus be made to correspond with the earlier action, and conform more strictly to the provisions of the 8th section of the article of the Constitution in relation to the purchase of places for the erection of forts, magazines, arsenals, dock-yards, and other needful buildings.

The difficulties here referred to would be readily avoided by adhering to the practice of the earlier period of the government in giving the consent of Congress to the laying of tonnage duties by the States, for works of internal improvement; or by pursuing the policy recommended by President Monroe—resting on a distinction which seems soon to have been forgotten or disregarded; and in 1848 President Polk endeavored to restore the government to its original policy—proposing as a substitute for appropriations from the public treasury, that by State legislation and with consent of Congress, tonnage duties should be laid for purposes of harbor and river improvements. This mode, than which none could be more equitable, none more consistent with that principle of equal burdens and benefits, to every section, which pervades the Constitution, and characterizes all its provisions, would certainly avoid that conflict of jurisdiction to which attention has been invited, and in all places having a considerable commerce subject to the imposition of tonnage duties, would be entirely adequate.

For the protection of ships of war and of commerce from storms, and the attacks of hostile fleets, lake and sea-coast harbors of refuge are essential adjuncts to other means of national defence, intimately connected with the maintenance of a navy. As such harbors would sometimes have little or no commerce, and these special duties and taxes could not be made available for their improvement and protection, it would be requisite in such cases to teach the construction of government works, and to acquire the right of soil and jurisdiction over the sites.

The public right of use of all the navigable waters of the United States, belonging equally to all the citizens, and some of the rivers of our country washing many States, and consequently not subject to the jurisdiction of either, these national highways bear peculiar relations as such to the powers and functions of the general government, its dependence upon them for the transportation indispensable for the defence of the frontier and the other vast interests which are involved are so well known that it cannot be necessary to enforce or elucidate them.

In considering these necessities and interests, one is forcibly reminded of the change which has occurred in the condition of our country since the date when the Union was founded.

The population and commerce is no longer confined to tide-water and the neighborhood of the sea coast, but the unexplored wilderness has become the seat of populous States and commercial cities. The application of steam to river navigation has borne the tide of commerce for thousands of miles beyond the tide of the sea, and a case is herein presented which the framers of the Constitution could not have anticipated or specially provided for.

If the enjoyment of this public right and the interest and convenience of the general government shall be deemed sufficient to warrant further operations for the removal of temporary and accidental obstructions in their natural channels, additional appropriations will be required for the expense of the steam-dredges and snag-boats, but if the Congress shall decide to discontinue the employment for this purpose, it will be advisable that directions should be given to dispose of the boats and other means which have been provided for their use, before deterioration and decoy shall have rendered them valueless.

The survey of the lakes, as it progresses, continues to afford results of practical usefulness.

No appropriations for military and geographical surveys west of the Mississippi have been made for some few years past, but with the remains of former appropriations, some explorations, promising results of much value, have been undertaken. It is to be hoped that Congress will concur in the expediency of continuing these appropriations which have afforded the means of obtaining that general information respecting the interior of the continent which is so necessary to the government, and of such essential advantage to the population now spreading itself over these territories.

Within a few years past an unusual number of suits have been brought against officers of this department, some being actions for damages for acts done by officers in the performance of their duty, and others attacking the title of the goverment to public property of great importance, or involving rights of more or less consequence. It has been usual when the department has employed counsel, to engage, in preference, the services of the district attorneys, but it is, therefore, necessary to make special contracts with them, in the same manner as if they were not in the public service, and to pay their fees from the contingent fund of the department. It would, in my opinion, be for the public interest, that the district attorneys should be required by law to take charge of all suits involving the interests of this department, and that their fees for such services being regulated by law, should be admitted and settled by the proper accounting officers.

Contracts have been made for the continuation of roads in Minnesota, agreeably to the provisions of the act of January 7, 1853, making appropriations therefor. An act of the same date directs the construction of two military roads in Oregon. Each of these was placed in charge of a competent officer, with instructions to locate and mark the line of the road as speedily as possible, and so to direct his operations as to secure a practicable wagon road for the benefit of the fall emigration and other travel. The commencement of one of these works was delayed by the difficulty with the Rogue River Indians, but a contract was made for rendering the other, from Walla Walla to Steilacoom, passable by the 15th of October last, and it is presumed its conditions have been fulfilled.

By the third section of the law approved March 3, 1853, it is enacted "that the Secretary of War be directed to report to Congress whether, in his opinion, it would not be more economical, proper, and advisable to cause all the arms of the United States to be made by contract. In complying with this requirement I shall exclude all political considerations involved in the question of manufacture by the general government, and, as I suppose was intended, to confine the expression of opinion to the relation the subject bears to the military service, and to relative merit of the existing system, and that of contracting for the manufacture of all arms. Viewing the armories as a part of the military preparation for the common defence, it is deemed essential that they should be under the control of the War Department, and advantageous, if not necessary, that such establishments should exist under the charge of competent and experienced officers of the army, to the end that a uniformity may be obtained, and all the improvements and efficiency secured, which professional zeal and skill would seek and produce. To this, the existing state of the case, as a standard, I have referred the proposition to make all arms by contract, and have reached the following conclusions:

1. As to the economy of the measure under a proper administration of a national academy, it is believed the arms can be obtained cheaper by government manufacture than by contract. Labor and all materials may be obtained upon as good, if not better, terms by the public than by private armories, because of the greater promptness and security of payment. The permanence of employment must constitute an inducement to workmen to enter the national work-shops. But, suppose these things to be equal; and the disadvantages certainly cannot be on the side of the government; it follows that the original cost would not be greater in the public than in the private armory. To this, in the cost of the government manufacture, there is nothing to add. But, in the case of the private contractors, there must be a profit on the manufacture, not only sufficent to cover the interest on the investment, but also the hazard which will attend a contract necessarily made for a short period. Experience has established several facts which seem to my mind conclusive as to the economy of the present mode of manufacturing small arms. Since the year 1840, the cost of making *muskets* has been so much reduced as to exclude competition, and no contracts have since that year been made for the manufacture of *muskets.* The price paid then for those contracted for were as high as $16 25 for some, and not less than $14 50 for the remainder. At the national armories the price averaged about $10 per musket. Since 1840 the contract price for rifles at the national armories has been reduced from $14 50 to 11 62½ each, which exceeds the cost of that arm at Harper's Ferry armory, during the last fiscal year, by $1 60.

Without the practical knowledge of the actual cost of manufacturing arms, now secured to the government by the results at the national armories, there would be no standard for determining proper rates for contracts, and without the means which these armories afford to supply the wants of government, there is reason to believe, it might be subject to extraordinary prices for arms from time to time required.

2. As to the propriety of the measure. It is believed the national establishments for the manufacture of arms are necessary to improve these models and to keep up the standard of materials and workmanship. While the interest and professional reputation of an officer of the army in charge of a national armory would impel him to introduce all improvements, his military associations would lead him to learn, and his military experience teach him the value of new modifications, made either in his own or other countries. On the other hand, the interest of the private contractor would be indefinitely to reproduce the model originally furnished to him, because every change would require either the abandonment of his tools, machinery, &c., or a modification to adopt them to the manufacture of the improved model. For this reason, and also because his workmen would be less expert upon a new modification than upon a form to which they were accustomed, every change would be to the contract or an evil in which he would see increased trouble and diminished profits.

The national armories are also necessary to keep up the standard of workmanship and finish in the contract establishments The arms made by contract are subjected to inspection by workmen detached from the national armories for that purpose. These inspectors, when not employed in the contract service, resume their positions in the national armories, and return to each contract inspection with a refreshed recollection of the standard of excellence of the government work. This advantage would be lost if all arms were made by contract, and the tendency would be steady deterioration, by the slow and imperceptible sinking of the standard, instead of the improvement which has resulted from the furnishing of new models and constant improvements in the government manufactures, to which inspectors require the contract arms to conform.

3. As to the advisability of the measure. If the views taken under the two other heads be correct, it follows that it would not be advisable to make all arms by contract. Neither would I think well to restrict the manufacture of all arms to the national armories. Pistols, for instance, are now made by contract, because the demand for them is so small that it was deemed more economical to provide them by contract than to provide the separate machinery and tools required for their manufacture; at least until a model for that arm shall be adopted more satisfactory than the one now in use, and likely, therefore, to be more permanent. Small numbers of peculiar arms are sometimes required, and in such cases it may be better to procure them by contract, than to provide the machinery required for their peculiar constructions. But it is still more important that the government should have the power to contract for the manufacture of arms, in the event of an exigency under which a greater number might be required than the public armories, upon a scale adapted to ordinary circumstances, would be able to supply. Instead of any conflict in the use of the two modes of supply, they are believed happily to harmonize in the production of cheap and effective fire-arms. In the last case supposed, the government workshops would furnish the models to private contractors, and serve as guides to establish the price which should be paid; while it would protect the government from being driven by its necessity to submit to extraordinary demands, and, perhaps, injurious delay.

It is believed that the excellence of the government manufacture has not been quite equalled by those of private contractors, even with all the advantages that now exist, in supplying models and inspectors. Upon examination of a report made by the commander of the arsenal, to which the rifles used by the voltiguer regiment in the last war with Mexico were returned, it appears that of the total number, 523, the 257 made at the national armory, required the repair of 45 of their parts—the 266 made by contract required the repair of 96 of their parts, showing a difference in favor of the government arms of more than two to one. The case is believed to be a fair one, and to present conclusive proof of the higher standard of material and workmanship in the government arms.

It is not known whether, by the use of the term "all the arms of the United States," it was intended to include the heavy guns or cannon. I will, however, remark, that all cannon are now made by contract. Congress having made no appropriation for a national foundry: and will take this occasion to recommend an appropriation for that object. The just admixture of metals and casting of bronze pieces require much mechanical skill, and no little scientific attainment. The examination of ores, and the casting of iron into cannon, is a subject which has attracted much consideration from the Ordinance Department, and presents a wide field for further investigation and experiments. The rigid inspection which each gun now receives has improved, and is still improving their quality, but it is believed there would be a more rapid advance in knowledge, and a higher standard of excellence attained if the advantage of a national foundry were possessed.

While on the subject of procuring arms for the United States, I deem it proper to refer to a matter which has heretofore received attention, and been the subject of frequent inquiry—that is the establishment of a national armory on the western waters. The propriety of having such a national establishment in the west is generally conceded, and perhaps one reason why it has not been done, is because the two United States armories at Springfield, Mass., and Harper's Ferry, Va., are sufficient for the manufacture of all the arms required by the government, and the wants of the country in this respect do not require a third. When the two armories were established, they were necessarily both located east of the Alleghany mountains, because the manufacturing facilities of the west were then undeveloped, and neither the material nor the labor requisite for them was of easy procurement there. Now, however, the case is just the reverse.

Besides the more equal and equitable distribution of these national establishments, geographically, the removal of one of them to some proper site on the western waters would be a more convenient and economical arrangement than that now existing. It would save the cost of transporting from a manufactory in the east all the arms required for use and distribution in the western part of the country, either for the government or the militia of the western States. All the materials required for the manufacture of arms are more abundant and cheaper in many places of the west, where motive power either by water or steam is readily attainable, and where the services of skillful artisans are to be readily had to any desirable extent, and on reasonable terms. These considerations alone seem to render it advisable to establish a western national armory. But when to them is added the fact that the eastern portion of the country has for so many years enjoyed a monopoly of these government manufactories, it appears to settle the question; and as but two armories are wanted to supply all the small arms of the United States, the removal of one of them westward seems the best way of effecting the object. The tools, machinery, and many of the most costly parts requisite for manufacturing, are not difficult of transportation, and may easily, and at but little cost, be sent from either of the armories, and set up in suitable buildings, previously constructed for the western armory. The transfer will thus leave no government property behind but the buildings, which may be usefully applied to purposes of private manufacture, and can, doubtless, readily be disposed of.

The work for the extension of the Capitol, which by your order of the 23d of March, was transferred from the Department of the Interior to the War Department, has been prosecuted with due diligence, under the special charge of Captain M. C. Meigs, of the corps of engineers, and it gives me pleasure to bear testimony to the manner in which that officer has discharged his duty, fully sustaining his reputation for professional zeal and fidelity. He was placed upon this duty April 4, 1853, and directed specially to examine into the condition of the foundation which had been previously laid, and minutely to inquire into the arrangements for warming, ventilating, speaking, and hearing.

A thorough examination of the foundation was made by excavating down to the soil on which it rested, and by cutting at different points through the masonry. The result was a report that less hydraulic lime had been used than was desirable, but that the strength of the foundation was sufficient for the proposed structure. The arrangements for ventilation and hearing were found satisfactory; and these being the great objects of the proposed extension, certain alterations in the plans were designed, and a board, composed of Professors A. D. Bache and Jos. Henry, was commissioned May 20, 1853, to make inquiries upon acoustics and ventilation, as connected with the adopted plan and proposed alteration. The board visited, and made various experiments in the principal public rooms of the cities of Philadelphia, New York, and Boston. After further examination of the various rooms visited, and a discussion of the phenomena presented, they reported on the 24th of June last, in favor of the modifications of the plans of the extension of the capitol, as proposed by Captain Meigs.

To construct a room of sufficient dimensions for the House of Representatives, so as to secure to each member the power to easily make himself heard at every point of the room, was an object of such high usefulness in legislation, and a problem of such difficult solution as to require thorough investigation, with all aids art and science could lend; and in view of the many unsuccessful attempts which have been made in our own and other countries to attain that result, success will be, in addition to its utility, an object of just national pride.

In addition to this special object, the modifications proposed were believed otherwise to increase the convenience and facilitate the intercourse of the Houses of Congress, and materially to add to the architectural effect of the building. As soon as the plans submitted received your approval, the consequent changes in the foundation walls were pressed with all possible rapidity, and the work has since then been steadily prosecuted without other delay than that which has necessarily resulted from occasional interruptions in the delivering of materials; and these have been overcome, as far as might be, by purchases in other markets, which could be made available. The stain which appeared upon the marble after it had been placed in the walls created some anxiety, and specimens were submitted to skillful chemists for an analysis. The result gave assurances that the discoloration would disappear; and in some instances observation has sustained that expectation. This is the more gratifying, because the marble is of most beautiful quality, and it might not have been possible elsewhere to procure a material which would have corresponded with it. I refer, for further details, to the accompanying report of Capt. Meigs, and, with a view to the rapid completion of the building, recommend to favorable consideration the estimate presented by him for the service of the year ending 30th June, 1855.

An appropriation was made at the last session of Congress for the purpose of bringing water into the city of Washington. In order to obtain an ample and constant supply from a source so elevated as to avoid the necessity for the use of machinery, it was decided that the water should be brought from the great falls of the Potomac, through an acqueduct nine feet in diameter. Upon the adoption of this plan, immediate application was made to the legislature of Maryland, in which State the source of supply lies, for their assent to the proposed work, which being given on conditions readily complied with, some portions of the necessary land were selected and purchased, and as soon as the season would permit, a considerable force was put upon the work. The works are estimated to cost rather less than two million three hundred thousand dollars, and when completed, will be capable of delivering nearly seventy million gallons of water daily, at an elevation of fourteen feet above the upper floor of the capitol. For further information I refer to the report of the chief engineer.

I deem it necessary to invite attention to the condition of the public building occupied by this department, which contains accommodations for less than half its bureaus, and not being fire-proof, but, on the contrary, especially defective in its construction, does not afford proper security to the papers and records, the loss of which would be irreparable. The subject has been repeatedly urged upon the attention of Congress by my predecessors, and I concur with them as to the necessity of procuring a fire-proof building of sufficient dimensions for the accommodation of all the business connected with this department.

To the accompanying reports of the commander general of the army, and the chiefs of the several branches of the military service, I refer for full information in relation to the duties with which they are respectively charged. For that success which attends the administration of army affairs we are in no small degree indebted to the ability, experience, and good faith of these officers. The report of the commanding general exhibits the distribution and numerical strength of the army, and shows how disproportionate our small military establishment is to the duties required of it. Professional skill, zeal, and fidelity have done much to compensate for the want of numbers, but the increased privation, toil, and danger incident to a service so varied and extensive, have greatly added to its list of casualities during the past year.

I have the honor to be, very respectfully, your obedient servant,

JEFFERSON DAVIS.

To the PRESIDENT.